BENCHMARKS

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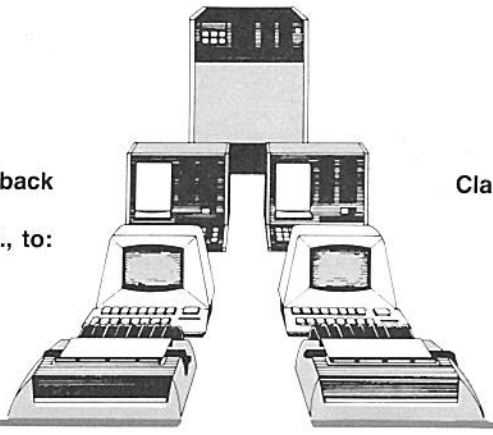

BENCHMARKS Reader/User feedback is encouraged.
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SERVICES AVAILABLE TO USERS OF THE NTSU COMPUTING FACILITIES

The NTSU Computing Center is located in the Information Sciences Bldg., Room 119. Telephone: (817) 565-2324. HELP DESK phone: 565-4050. Graphics Lab phone: 565-3479

BENCHMARKS QUESTIONS/CONTRIBUTIONS, ETC. - Claudia Lynch

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STUDENT PROGRAMMING PROBLEMS - CSCI Dept., GAB Room 542A; BCIS Dept., BA Room 152

JCL PROBLEMS; PASSWORD & OPERATING SYSTEM PROBLEMS; COMMUNICATION/TERMINAL PROBLEMS - Help Desk

DATA ENTRY & KEYPUNCH; TEST SCORING & ANALYSIS - Betty Grise

ADMINISTRATIVE APPLICATIONS - Coy Hoggard

PRINTOUT RETRIEVAL - RJE Operators

DIALING UP NTSU COMPUTERS OVER THE TELEPHONE

Phone numbers for the Local Area Network (LAN) are:

300 BAUD: (817) 565 - 3300
1200 BAUD: 565 - 3499
300 BAUD: D/FW METRO 429 - 6006

After a communications link has been successfully established, the user will receive the # prompt. At this point, it will be necessary to issue the appropriate CALL command to connect with a computer.

The numbers that will accept either 300 or 1200 baud communications (connected to modems with an autobaud feature) are currently out of order. Watch MUSIC/SP News and *Benchmarks* for information concerning their availability.

CALL 8040 will connect with the NAS/8043 (for MUSIC/SP
8050 access)
8060

CALL 3270 will connect with the NAS/8043 through the 3270
3280 protocol converter

CALL DEC will connect with the VAX Cluster
CALL 780 will connect with the Research VAX

CALL 2000 will connect with the HP-2000

NTSU CABLE SYSTEM SCHEDULE

The current configuration of the NTSU cable system is as follows:

Channel 8 — Tager microwave channel. Carries broadcasts to and from NTSU to other links in the Tager network.

Channel 10 — NTSU Computer System Status Monitor (SSM). Displays the current status of the NAS, VAX and HP computer systems supported by the Computing Center.

Channel 7 — NT Daily. Broadcast originates from the NTSU Journalism Department.

Channel 12 — Sammons Cable. Currently broadcasts Cable News Network (CNN), unless a special program is requested.

Special broadcasts to and from classrooms (on channel 11), etcetera can be arranged by contacting the Media Library (565-2484).

HOURS FOR NTSU COMPUTER ACCESS AREAS*

SPRING 1986:

Days	Times	Location
Sunday	2-10 p.m.	ISB 110 Terminal Area
	Noon-Midnight	Computing Center RJE
	2-11 p.m.	GAB 550C
Saturday, Sunday	Noon-11:45 p.m.	College of Business
	Noon-5 p.m.	Graphics Lab
Monday	7:00 a.m.-Midnight	Computing Center RJE
Tuesday-Saturday	7:00 a.m.-Open 24 hrs/day	Computing Center RJE
Monday-Thursday	7:30 a.m.-10 p.m.	ISB 110 Terminal Area
	8:15 a.m.-11:45 p.m.	College of Business
	8 a.m.-Midnight	GAB 550C
Monday-Friday	8 a.m.-10 p.m.	Graphics Lab
Friday	7:30 a.m.-9 p.m.	ISB 110 Terminal Area
	8:15 a.m.-7:45 p.m.	College of Business
	8 a.m.-8 p.m.	GAB 550C
Saturday	9 a.m.-6 p.m.	ISB 110 Terminal Area
	CLOSE Midnight	Computing Center RJE
	CLOSED	GAB 550C

*Exceptions to above schedule for GAB 550C: 5/15 10 a.m.-8 p.m.; 5/12-5/15 8 a.m.-10 p.m.; 5/16 8 a.m.-5 p.m.

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NEW POLICIES, PROCEDURES, AND OTHER IMPORTANT STUFF

Installation Schedule for New Computer Systems

The February issue of *Benchmarks* stated that the NAS/8043 and the NAS/6650 computers will be upgraded to a dual processor NAS/8083 the week of May 19, 1986. This project is still on schedule and the following downtime is planned for the academic and administrative systems.

Saturday, May 17	: 6 a.m.	- Sunday, May 18	: 8 a.m.	(academic system down)
Wednesday, May 21	: 7 a.m. - 7 p.m.	- (academic MVS system down - NO JOB SUBMISSIONS)		
Saturday, May 24	: 8 p.m.	- Monday, May 26	: 8 a.m.	(BOTH academic and administrative systems down)

It should be noted that the time periods above are *approximations* and could change due to unforeseen circumstances. The MVS operating system will be upgraded on May 21, which should be transparent to most users. However, programs written in certain languages such as VS FORTRAN, Optimizing PL/I, or VS COBOL that are being executed without a PROC (i.e., with PGM=) may need to put a STEPLIB card in their job stream. Also, all jobs must be off the MVS job queue by midnight May 20, or they will be deleted. Please watch MUSIC/SP News for the latest information on any changes that may have taken place with MVS. Also, feel free to call Academic Computing Services (565-2324) for help with any changes you may need to make in your jobs.

Electronic Transfer of Text to NTSU Printing Services Now Available
By Dave Molta, Technical Support Communications Staff (AC04@NTSMUSIC)

Offices and departments (i.e., *administrative* users) requiring typesetting services are now able to transfer computer-based text directly to NTSU Printing Services over the campus-wide Local Area Network (LAN) using a newly installed Computer-Aided Composing (CAC) facility.* Lengthy documents which previously required manual entry by Printing Services personnel can now be transmitted directly to Printing Services either by using a microcomputer with appropriate communications software and hardware or by using the Remote Spooling Communications Subsystem (RSCS) from one of the mainframe computers at NTSU. Users taking advantage of electronic text transfer should enjoy faster service with fewer errors at a reduced cost.

Transmitting Files to Printing Services over the LAN: Necessary Hardware and Software

In order to transmit files to NTSU Printing Services over the LAN, it is necessary to acquire the following equipment:

1. *A microcomputer*: Most microcomputers are capable of being configured with software and hardware needed for data communications. However, systems which run the MS-DOS operating system are preferable.
2. *An asynchronous communications interface*: The communications interface usually consists of a circuit board installed within the microcomputer's system unit.
3. *A Packet Communications Unit (PCU)*: The PCU is a specialized type of modem which allows for high-speed communications over the cable television (CATV) lines installed throughout campus.
4. *Communications Software*: Any communications program which supports ASCII file transfer should be sufficient. Software packages which have been tested include Crosstalk XVI, VTERM, and COMTTY.
5. If you use WordStar to compose your documents, you must acquire a utility program which modifies WordStar text files so that they may be transmitted over the LAN.

For further information concerning the costs of these items and procedures for acquiring them, contact the Computing Center at 565-2324.

*For a detailed description of the LAN, see "The Local Area Network at NTSU" available at the Computing Center (ISB 119).

Communications Parameters

In order to communicate properly with Printing Services' computer, the parameters of your communications software need to be configured to match theirs. The following parameters should be set to the indicated values.

1. *Baud Rate*: Baud rate should be set to **9600** bps.
2. *Word Length*: This parameter is often referred to as the number of data bits. In general, either **7** or **8** data bits will work properly.
3. *Stop Bits*: In general, **1** stop bit is appropriate.
4. *Parity*: In general, parity should be set to **none**. If your communications software requires either even or odd parity, select even parity, but make sure the word length is set to 7 data bits.
5. *Flow Control*: Flow control allows speed matching so that a device at one end of the communications link does not overflow the input buffer of the receiving device. To interface properly with the LAN, flow control should be set to **XON/XOFF**.
6. *Duplex*: Duplex should be set to **full**. If you see double characters on your screen, type **ECHO OFF** ‹RETURN› at the LAN # prompt.

Transmitting Your Files over the LAN

In order to transmit your file to Printing Services, follow the procedures outlined below.

1. Call Printing Services at 2005 and obtain a 4-digit Job Number. This is required by their facility for billing purposes.
2. Make sure the file you wish to transmit is an ASCII file with no control characters in it. Some word-processing programs, such as Wordstar, imbed control characters into the file to handle formatting. To determine if your file has extraneous control characters in it, list the file from your operating system. For example, in MS-DOS

   A›**TYPE [filename]** ‹RETURN›

   will list your file on the screen. If you see any graphics characters that are not supposed to be in your file, you must use a utility program to strip these characters out (call the Computing Center for a copy of this program).
3. Insert several lines at the beginning of your file (header records) including your name, a description of the document being sent, the date, and the job number. Include several lines at the end of your document (trailer records) with the same information and a line stating that this is the end of the document.
4. Run your communication program, with the configuration outlined above, and enter the following information when you have gotten the pound sign (#) on the screen (you enter all highlighted information, depressing the ‹RETURN› key after each command sequence:

   #CALL CAC

   You should see the following response:

   # CALL COMPLETED TO CAC,0

   If you see the following response:

   # UNABLE TO OPEN SESSION — REMOTE PORTS BUSY

   someone else is transmitting a file. Wait a few minutes and call back. When you are advised that the call has been completed, you are ready to transmit your file. This procedure is dependent on the communication program you are using. For example, if you are using VTERM, you should press the ‹INS›ert key to get to set-up mode in VTERM, press the ‹SHIFT› and ‹T› keys simultaneously and type in the name of the file you want to send. Press the ‹INS›ert key again to exit set-up mode and press the ‹ALT›, ‹CTRL›, and ‹T› keys simultaneously to start sending the file.
5. When your file has been sent, you must close your network session. To close your session, escape to the LAN pound sign (#) by pressing the ‹ESC›ape key followed by the ‹RETURN› key (or, on some terminals, ‹ESC›ape followed by ‹DEL›ete). Once you see the # sign, type the following:

   #Done ‹RETURN› ‹RETURN›
   #SESSION 1 CLOSED TO CAC,0
6. Call Printing Services' composing room at 3644 to confirm that your file has been received.
7. Forward a hardcopy of the material you have sent over the network to Printing Services, along with instructions as to how your final copy should look. This may require a personal appearance by you at Printing Services, especially if your document requires complex formatting.

Transmitting Your Files Using RSCS

An alternative method of transmitting files to Printing Services, and the only method currently available to academic users, is through the use of the Remote Spooling Communications Subsystem Network (RSCS). This method would be appropriate if your text resides on the MUSIC (or CMS) Operating System. If this is appropriate for your application, follow the procedures outlined below.

1. If you are using MUSIC, you must first obtain authorization from the Manager of Academic Computing to send files outside of the MUSIC system.
2. Call Printing Services at 2005 and obtain a 4-digit Job Number. This is needed by Printing Services for billing purposes.
3. Establish a session with the NTSU Local Area Network, either by running your communication program from your microcomputer or by using a terminal in one of the public access areas on campus. From the LAN # prompt, enter the following

   #CALL 3270 ‹RETURN›

   Enter the appropriate 2-digit terminal type when prompted to do so. Once the VM/370 logo appears on your screen, press ‹RETURN›. **CP READ** should appear in the lower right corner of the screen. At this point you should either log-on directly to CMS or type **DIAL MUSIC**, depending upon which operating system you are using.
4. Insert several lines at the beginning of your file (header records) including your name, a description of the document being sent, the date, and the job number. Include several lines at the end of your document (trailer records) with the same information and a line stating that this is the end of the document.
5. Send your material to Printing Services. If you are a MUSIC/SP user, enter the following command from the MUSIC *GO prompt:

   SENDFILE [filename] TO PRNTSHOP AT NTSULAN ‹RETURN›

   where [filename] is the name of the file you wish to send. If you are a CMS user, enter the following commands:

   SP PUN RSCS ‹RETURN›
   TAG DEV PUN NTSULAN PRNTSHOP ‹RETURN›
   PUN [fn] [ft] (NOH ‹RETURN›

   where **[fn]** is the name of the file you wish to send and **[ft]** is its file type.
6. When your file has been sent, you must sign-off MUSIC and close your network session. To close your session, escape to the LAN pound sign (#) by pressing the ‹ESC›ape key followed by the ‹RETURN› key (or, on some terminals, ‹ESC›ape followed by ‹DEL›ete). Once you see the # sign, type the following:

   #Done ‹RETURN› ‹RETURN›
   #SESSION 1 CLOSED TO CAC,0
7. Call Printing Services composing room at 3644 to confirm that your file has been received.
8. Forward a hardcopy of the material you have sent over the network to Printing Services, along with instructions as to how your final copy should look. This may require a personal appearance by you at Printing Services, especially if your document requires complex formatting.

Obtaining a Communications Program

Any communications software program which supports the parameter configurations outlined earlier and is capable of transmitting ASCII files should be adequate for sending files to Printing Services. The following communications programs have been tested for use in transmitting files to Printing Services and are currently supported by the Computing Center.

TEXAS INSTRUMENTS PROFESSIONAL COMPUTER:

- VTERM (available from the Computing Center at no-cost for University-owned TIPCs)
- COMTTY (Available through Texas Instruments)
- CROSSTALK XVI
  Microstuf Inc.
  1000 Holcomb Woods Parkway
  Roswell, Georgia 30076
  Price: $195.00

IBM PERSONAL COMPUTER:

- CROSSTALK XVI (Available mail-order for under $100.00)
- VTERM II
  Coefficient Systems Corporation
  611 Broadway
  New York, NY 10012

Editor's Note: We hope to announce the availability of the LAN service for Academic Users in the near future. We'll keep you posted. In the meantime, read on to see about a pioneer user of remote typesetting via the LAN.

The Computerization of the NTSU Journalism Department
By Jim Rogers, Professor - Journalism Department (FA50@NTSMUSIC)

Taken from a story written for the Journalism alumni newsletter

Editors of the semiweekly NTSU *Campus Chat* once stepped across the hall of the old Journalism Building to hand their copy to a Linotype operator. Change "Linotype" to "phototypesetter" and you describe the *North Texas Daily* editors who replaced the *Chat* staff as the student journalists on campus.

Since the Journalism Department moved to the General Academic Building in 1978, copy has been sent to the printer on a computer floppy disk, transported by pedestrian or cyclist.

On February 3, with the University Printing Office now located nearly a mile west near Fouts Field, the *Daily* moved all of its copy on the University's Local Area Network (LAN), a communications cable system that provides television and computer connections among some 50 university buildings.

Stories are typed on Tandy 1000 personal computers in the *Daily* office. Communication software in the Tandy enables the rapid transfer of copy on the network to the computer front end of the Linotron 202 that produces type for the *Daily*.

The second use of the LAN by journalism students began in 1985 with the production of an electronic edition of the *NT Daily*. It's created on a cable-text generating computer and sends rotating news text out to the campus and to the Denton cable TV system 24 hours a day.

On the same day that the first LAN-based *Daily* appeared, the Journalism Department received a shipment of 13 Apple Macintosh computers. These will be linked with an Apple LaserWriter in a desktop publishing laboratory for advertising and public relations students. The Mac computers will generate type and graphics, laid out in advertising or page format, and will print out camera-ready copy on the laser printer.

The publishing lab is made possible by Proposition 2, the constitutional amendment that started providing funds last September to schools outside of the University of Texas and Texas A&M systems.

The department will also use a new university writing laboratory that is being created with Proposition 2 funds. The campus network will provide access to a set of 30 computer programs from AT&T known as "Collegiate Writer's Workbench."

Working from a terminal or a personal computer tied to the LAN, a student will write a story or composition and submit it to the computer for analysis of spelling, readability, grammar and punctuation, triteness, stylebook conformity, and a number of other text-analysis operations. The student receives a typed copy of the analysis and must then decide how he wants to edit or rewrite his copy.

The news reporting laboratory will receive 20 terminals connected to the writing lab programs. After students have completed their copy, the story files will be moved on the LAN to the NT Daily and the deskwork lab for editing and eventual relay on the network to the typesetter.

Another round of Proposition 2 funds will become available next September and one more computer-based lab is being proposed for the benefit of student journalists. This project would provide 16 personal computers networked to form a standard newspaper front-end system for copy production. This would replace a moribund eight-terminal TalStar system that has served the deskwork lab and produced *Daily* copy since 1979. The system has been planned so that personal computers can be added to create 40 student reporting and editing stations.

New Printing Environment Available on the Laser Printer

A new printing environment is available on the HP 2680A Laser Printer. It is a Greek/math symbol environment, and can be called by asking for either GRK1, GRK2, GRK3, or GRK4 within your JCL, depending on how many copies of your document you want (1-4). The general characteristics of the GRK environment are the same as the TN01. That is, 10 characters per inch; 90 degree rotation; 77 characters per line; 66 lines per page; and Standard 'Courier' style characters. (If you own a copy of the Computing Center Reference Card "The Hewlett-Packard 2680A Laser Printer," you should probably make a note of this new print environment on it.) To get a single copy of output in the GRK environment, the DD statement would look like: **//SYSPRINT DD SYSOUT=(A,,GRK1)**

The best way to access this environment is probably from either Waterloo/SCRIPT or MUSIC/SCRIPT, since they have a "translate" feature (.TR) which allows you to substitute a character on your keyboard for one that is not (Consult the *Waterloo/SCRIPT Reference Manual* or the *MUSIC SCRIPT User's Guide* for more information on the .TR command). However, it would be possible for you to input the hexadecimal equivalent (see table below) into a program in which you have defined your input as HEX, and still get the character(s) you want. It should be noted that the table is arranged so the the vertical number is read first and then the horizontal. Hence, a HEX 81 is an **a**.

	-0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-A	-B	-C	-D	-E	-F	
0-																	0-
1-																	1-
2-																	2-
3-																	3-
4-			~	α	β	γ	δ	Ω	ξ	η	¢	.	<	(	+	|	4-
5-	&	λ	μ	ξ	π	ρ	σ	τ	φ	ψ	!	$	*	)	;	¬	5-
6-	-	/	ω	∈	θ	ϕ	Γ	Δ	Λ	Ξ	|	,	%	_	>	?	6-
7-	Π	Σ	⊂	⊂	⊃	∩	∈	∪	∫	`	:	#	@	'	=	"	7-
8-	∞	a	b	c	d	e	f	g	h	i	×	{	≤	(	+	┼	8-
9-	·	j	k	l	m	n	o	p	q	r	÷	}	π	)	±	■	9-
A-	-	°	s	t	u	v	w	x	y	z	≡	⌞	⌜	[	≥	●	A-
B-	0	1	2	3	4	5	6	7	8	9	∝	⌟	¬	]	≠	–	B-
C-	{	A	B	C	D	E	F	G	H	I	√	∑	~	∂	¯	₀	C-
D-	}	J	K	L	M	N	O	P	Q	R	₁	₂	₃	₄	₅	₆	D-
E-	\		S	T	U	V	W	X	Y	Z	₇	₈	₉	⊥	∀	∋	E-
F-	0	1	2	3	4	5	6	7	8	9	∈	∉	∃	||	~		F-

COMPUSTAT is Now User Friendly
By Telka Clem, Academic Computing Staff (AC22@NTSMUSIC)

Two "SAS friendly" tapes have been created from the Standard and Poor's COMPUSTAT tapes containing the Industrial Annual Research file and the Primary - Supplementary - Tertiary Annual file. What makes these tapes so user friendly is that each record contains only one year's information, instead of COMPUSTAT's format of a 20 year array. SAS is also a bit more user friendly than FORTRAN.

We hope that these tapes will make everyone's lives easier when dealing with this large amount of data. If you would like more information about accessing these tapes, handouts are available in the Computing Center Reception Area (ISB 119). You may also contact me at 565-2324 or send me electronic mail.

The ICPSR Summer Program
By Bob Brookshire, Manager of Academic Computing (AS03@NTSMUSIC)

The Inter-university Consortium for Political and Social Research (ICPSR), of which NTSU is a member, offers a summer training program in statistics, data analysis and computer use at the University of Michigan. This program is open to graduate students (for credit or as auditors) and to faculty (as Visiting Scholars). The course offerings are diverse, intensive and cover both the most widely used data analysis techniques and those methods that are "on the leading edge."

The workshops involve "hands on" applications of the techniques covered, and include access to the vast data collections of the Consortium. Instructors in the program come from institutions across the U.S. and from Canada, including the Wharton School, UCLA, Brandeis, the University of Georgia, Ohio State University, Northwestern University, Dartmouth and Yale, as well as Michigan. The instructors represent such disciplines as Statistics, Mathematics, Business, Psychology, Sociology, Political Science and History.

The courses offered include: Basic Mathematics, Introduction to Computing, Introduction to Statistics & Data Analysis, Measurement and Design of Social Research, Implications of Sample Design for Data Analysis, Mathematics for Social Scientists, Mathematical Models: Game Theory, Mathematical Models: Rational Choice in a Social Context, Modeling Social Phenomena: Dynamic Models, Introduction to Regression Analysis, Linear Models, Scaling and Dimensional Analysis, Innovative Exploratory Methods of Data Analysis, Multivariate Statistical Methods, Causal Models, LISREL Models with Unmeasured Variables, Time Series Analysis, Even History Analysis, Categorical Data Analysis, LISREL Models, Logit and Log-linear Models, Applied Time Series Analysis, Contextual and Multilevel Analysis Models. There are also a variety of shorter workshops and lectures.

For more information, you can contact me at the Computing Center. I have brochures, posters, admissions forms, booklets, etc.

Computing Center Reference Materials

The following reference materials have been compiled by Computing Center Staff and should be available from the Computing Center Reception Area, ISB 119.

- The two most recent copies of Benchmarks (back issues are available, but may take some time to retrieve.)
- "Using Micros to Communicate With the NAS/8040, 6650, VAX 11/780s"
- "Points of Interest GAB 560"
- "The Local Area Network"
- "VAX VMS EDT Televideo Keypad Guide"

- "Academic Computing Services Brochure"
- "REXX Handout"
- "3270 Cheat Sheet"
- "Hardware Configuration for NAS/8040, NAS/6650, VAX"
- "VAX CAI Televideo 970 Keypad Guide"
- "Using the 3270 Protocol Converter at NTSU"
- "Quick Reference to NTSU Local Area Network"
- "Software - What We Have and What We Support: Spring 1986"
- "Program Settings for Communicating With NTSU Mainframe Computers"
- "COMPUSTAT"
- "Electronic Transfer of Text to Printing Services at NTSU"

These additional reference materials, produced by the Computing Center, are on sale at the University Store:

- "The Hewlett-Packard 2680A Laser Printer Reference Card" - $.70
- "NTSU Waterloo SCRIPT Reference Card" - $1.00
- "MUSIC/SP Reference Card" - $1.35
- *Stat Pak Users Guide* - $4.00
- *MUSIC Script Users Guide* - $3.75
- "JCL Reference Card for Statistical Packages" - $.25

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MS-DOS Tutorial

In the January *Benchmarks*, Sandy Franklin, our Office Automation Specialist, mentioned that she gets a lot of calls from users who seldom use MS-DOS commands and then get confused when they need to do something like back-up their disk drives. We are reprinting the following article as a public service to anyone who has ever been confused by MS-DOS. It appeared in *SERDACumentation*, the S.E. Regional Data Center Newsletter, (Miami Florida -Spring, 1986; pp. 12-17), and is an extracted version of a longer article, "What You Should Know About MS-DOS," that appeared in *Personal Computing*, August 1985, pp. 45-47 (Copyright 1985, Hayden Publishing Company). It should be noted that, since this article is also referring to PC-DOS, some of the references are IBMesque. The disk drive reference of C, for example, is an IBMism. TIPC hard disks are referred to as E. Additionally, the commands FDISK, COMP, GRAPHICS, and MODE do not work on the TIPC. The five function keys, ‹F1›...‹F5›, are not configured on the TIPC, but can be by using the **CONFIG** command. Also, the control key sequences have been edited to conform with the *Benchmarks* standard notation, which encloses references to specific keys within arrows (‹ ›).

DOS COMMANDS YOU *MUST* KNOW

Mastering the subtleties of MS-DOS isn't often absolutely necessary, but grasping a few of the fundamentals is a must for productive sessions. Here are some of the basic tools of PC-DOS/MS-DOS in its second revision (2.0, 2.1, 2.11, etc.). Commands specified as "internal" are always in memory once DOS is booted; "external" commands, however, require the corresponding file to be present in the current disk drive.

CHDIR (Internal) changes the current, or active, directory. **CD** may also be used. The CHDIR command applies only when subdirectories (directories which branch out from the main or "root" listing) are being used. CHDIR — [alone] always returns you to the main directory. Example: **A›CHDIR C:—SUBDIR1**

CHKDSK (External) provides a quick status report of disk contents and available memory. Specifically, CHKDSK displays (in bytes) the total disk space, the space occupied by "hidden" system files and user-created files, and the file space available—checking for and even correcting disk faults as it goes. Total and available RAM memory is also displayed. Example: **A›CHKDSK B:**

COPY (Internal) performs a variety of copying duties, primarily copying files from one disk to another. COPY can duplicate files and retain the original's name or designate a new file name. Files can be linked [concatenated] while being copied as well. COPY can also be used to send keyboard input to a file or the printer and copy a file directly to the printer. Example: A>**COPY THISFILE B:**

DATE (Internal) displays the current date setting and prompts you to alter it if necessary. (A clock/calendar chip will keep the date for you.) Often included as part of a system disk's startup procedures, DATE is used primarily to record (in the directory) the date of a file's creation or latest revision. Example: A>**DATE**

DIR (Internal) displays a directory, or listing, of the files on the specified disk. In addition to the file names, DIR lists the volume name, each file's size, the date and time of each file's most recent update, and the amount of free disk space. DIR can also display partial listings when a file or group of files is specified. Example: A>**DIR B:**

DISKCOPY (External) copies the entire contents of one floppy disk to another (not for use with hard disks). DISKCOPY automatically formats the "destination" disk as it copies from the "source" disk. Example: A>**DISKCOPY A:B:**

ERASE and **DEL** (Internal) do exactly the same thing: erase (or delete) the file or group of files you specify. An "Are you sure? (Y/N)" prompt appears when you attempt to erase ALL the files on a disk. Example: A>**ERASE THISFILE** or **A>DEL THISFILE**

FDISK (External) loads a utility program, which lets you perform some basic hard disk preparation and maintenance. Specifically, FDISK allows you to: CREATE partitions (divisions) on the hard disk to accommodate different operating systems if desired; change the active partition; delete a partition; display a partition's vitals (operating system used, size, etc.); select a second hard disk to be partitioned; and prepare a hard disk to be transported by "parking" its read/write heads. A hard disk must be partitioned, even if MS-DOS occupies the entire storage space, and then formatted in the usual fashion. Third-party-hard disks may arrive with their own utility programs for this purpose. Example: A>**FDISK**

FORMAT (External) constructs an invisible format on the floppy disk for recording data. It is often called "initializing" a disk. You must format any floppy disk before MS-DOS or applications will recognize it properly. Two sidekicks to FORMAT, /V for naming the disk and /S for creating a system disk, are frequently added to the command. Example: A>**FORMAT B:**

MKDIR (Internal) creates a new subdirectory. **MD** may also be used Example: A>**MKDIR C:—SUBDIR1**

RENAME (Internal) changes the name of a file. A shortened form of the command, REN, may also be used. Example: A>**RENAME THISFILE THATFILE**

RMDIR (Internal) removes, or erases, an empty subdirectory. **RD** may also be used. The main (root) directory and the currently active directory cannot be removed. Example: A>**RMDIR C:—SUBDIR1**

SYS (External) copies the "hidden" MS-DOS system files (IBMIO.COM and IBMDOS.COM in PC-DOS) to a formatted disk, thus creating a "system disk" which is self-booting. Application programs that are copy-protected are likely candidates for the SYS command, since their files cannot be moved over to a system disk created by the FORMAT/S directive. The SYS command does not alter the "visible" contents of a disk. Example: A>**SYS B:**

TIME (External) displays the current time setting and prompts you to alter it if necessary. (A clock/calendar chip will keep the time for you.) The time is displayed in military fashion using hours, minutes, seconds, and hundredths of seconds. Like the DATE function, TIME is often included as part of a system disk's startup procedures, and is primarily used to record the time of a file's creation or latest revision. Example: A>**TIME**

TREE (External) displays the structure of a specified disk, listing every path (directory) name and its subdirectories. The files within each directory may also be displayed with the TREE command. Example: A>**TREE C:**

TYPE (Internal) displays the contents of a specified file. TYPE is only truly useful for standard text (ASCII) files or close cousins thereof; gibberish-like results are likely with other file types. Files can be printed as they are displayed by first invoking the Control-P combination, which sends everything displayed on the screen to the printer until turned off with the name keystroke. The TYPE command does not alter files in any way. Example: A>**TYPE THISFILE**

VOL (Internal) displays the volume label you (or a manufacturer) have given to a particular disk. You cannot, however, change the volume name with the VOL command; only by reformatting a disk with the FORMAT/V directive can a volume label be renamed. Example: A>**VOL**

* and ? are DOS's global or "wild-card" characters. The question mark is used to denote "any character," while the asterisk means "any group of characters." Wild cards are typically substituted for a character or group of characters in a file name and its extension (.TXT, for example). Thus, *.TXT might be used to denote all text files, and DATA8? might be substituted for DATA83 and DATA84. All files on a disk are frequently represented as *.*. Example: A>**COPY *.TXT B:**

DOS COMMANDS YOU *SHOULD* KNOW

The difference between driving MS-DOS and making it fly is usually a matter of a few "extras." The commands that follow, taken from version 2 of PC-DOS/MS-DOS (2.0, 2.1, 2.11, etc.), will help you get off the ground. Commands noted as "internal" are memory resident; "external" commands require a corresponding disk file.

BACKUP (External) makes a backup copy of one or more files from a hard disk to formatted floppy disks. The BACKUP command can be modified to include only files that have been modified since the last backup (/M), only files written on or after a specified date (/D), and all subdirectory files beyond the active directory (/S). Example: A›**BACKUP C:*.TXT A:**

BATCH (External) commands are really files (with the .BAT extension) that contain a series of DOS instructions that are executed sequentially. Batch files, usually created with the COPY CON command or DOS'S EDLIN line editor, are set into motion by typing the name of the file (without the extension). Thus, a simple batch file called LOTUS.BAT — containing the DATE, TIME, and 1-2-3 commands — would, after "lotus" is typed in, prompt you for the date and time, then whisk you into the 1-2-3 program. A batch file must be in the current directory to be executed, unless the PATH command directs DOS to also look elsewhere for the file. A special batch file called AUTOEXEC.BAT is automatically executed whenever DOS is booted. Batch files can be further shaped with "batch processing control" subcommands and "dummy" (replaceable) parameters. Some in-depth study is required to master the ins and outs of batch commands. Example (to create a batch file): **COPY CON: AUTOEXEC.BAT**

COMP (External) compares two individual files, or sets of files. Often used after the COPY command to ensure the accuracy of the duplication, COMP reports up to 10 mismatches before ending the comparison. Example: A›**COMP A:THIS FILE B:THATFILE**

‹**CTRL**›‹**C**› (Internal) is a keystroke combination (Control and C keys) that stops the execution of a DOS instruction in progress. A batch file or directory listing interrupted by ‹CTRL›‹C›, for example, would abort the specific task and return you to the A› prompt. ‹CTRL›‹BREAK› does the same.

‹**CTRL**›‹**PRTSC**› (Internal) is a keystroke combination (Control and PrintScreen keys) that sends whatever follows on the display screen to the printer. Unlike ‹SHIFT›‹PRTSC›, which sends only the current screen to the printer, ‹CTRL›‹PRTSC› continues to send all displayed characters to the printer until the command is turned off with the same keystroke. ‹CTRL›‹P› can be used interchangeably with ‹CTRL›‹PRTSC›.

‹**CTRL**›‹**S**› (Internal) is a keystroke combination that temporarily freezes the screen display. Hitting the same keystroke again [or any other key] resumes the display flow. ‹CTRL›‹S› is particularly handy for long directories.

DISKCOMP (External) compares the entire contents of two floppy disks (as opposed to COMP, which compares files). DISKCOMP is often used after completing a DISKCOPY to ensure the accuracy of the copy. Example: A›**DISKCOMP A: B:**

EDLIN (External) is DOS's line editor, or line-oriented text editor. Primarily used by programmers for generating line-by-line source code, EDLIN can be employed as a rudimentary word processor for creating and editing text files. EDLIN is particularly useful for creating files with lists, such as a batch file containing a list of DOS instructions. Example [to invoke the editor]: A›**EDLIN**

‹**F1**›. . .‹**F5**› (Internal) are the first five function keys, which are used by DOS for editing the commands you type in. ‹F1› repeats the last entered command, character by character. ‹F2› repeats the previous command up to any character you specify. ‹F3›, the most helpful of the bunch, repeats a command in its entirety. ‹F4› repeats a command beginning with the character you specify. ‹F5›, after a command is typed, moves the cursor down one line and lets you edit that command before entering the directive.

FIND (external) is one of DOS's "filter" commands, searching and displaying all lines from a file (or group of files) that contain the string of characters you specify. Thus, you can use FIND to search for files which contain a specific phrase or keyword. The character string to be found is enclosed in quotes. Example: A›**FIND "SALES FIGURES" MEMO1.TXT MEMO2.TXT**

GRAPHICS (External) allows the contents of a graphic display to be printed on a dot-matrix printer. (A graphics video adaptor is necessary.) The GRAPHICS command moves DOS into graphics mode, letting the ‹SHIFT›‹PRTSC› keystrokes send the on-screen graphic to the printer. In 320 by 200 graphics mode, the graphic is printed normally. In 640 by 200 mode, the graphic is printed sideways to accommodate the higher number of pixels. Example: A›**GRAPHICS** then ‹SHIFT›‹PRTSC›

MODE (Internal) sets the "mode" of operation for display, printer, and communications output. MODE has a myriad of options. For the display, MODE switches between color and monochrome output, sets the screen width to 40 or 80 columns, and lets you shift the display right and left and run a test pattern. For the printer, MODE lest you choose the printer number, the characters per line, and the vertical in lines per inch. For communications output, MODE lets you choose a serial port (COM1 or COM2) and sets the protocol parameters (baud rate, parity, data bits, and stop bits) to be used for transmission. MODE can also be used to redirect parallel printer output to the communications adaptor. Example: A›**MODE 40** (sets display to 40-character width).

MORE (External) is another of DOS's "filter" commands, causing the display to pause at each screenful of characters. MORE is typically used in conjunction with other DOS commands, like DIR, to regulate the flow of data. Pressing any key resumes the display scrolling. Example: A›**DIR | MORE**

PATH (Internal) causes specified directories to be searched for commands or batch files not found in the active (current) directory. Distinct directories are separated by semicolons. Most often used within batch files, the PATH command eliminates the need for copying the same program or batch file to several directories. Example: A›**PATH —SUBDIR1;—SUBDIR2**

PRINT (External) provides DOS with its sole multitasking capability: printing a list (or queue) of data files while you are performing other tasks on the computer. Up to 10 files can be queued for printing at one time, and files can be added and cancelled at any time. Example: A›**PRINT FILE1 FILE2 FILE3**

PROMPT (Internal) allows you to set a new system prompt if you're tired of plain old A›. The new prompt, which must be recalled (manually or by a batch file) each time the system is rebooted, can use standard text and/or commands supplied by DOS to display special characters (like ‹ and ›) or system information (like the date and time). Example: A›**PROMPT pg** (displays both drive and subdirectory designation at prompts).

RESTORE (External) copies (restores) files from a floppy disk, created by the BACKUP command, to the hard disk. Files in all subdirectories can be restored, and you can opt to be prompted before restoring files that have changed since they were last backed up. Example: A›**RESTORE A:*.TXT C:**

SORT (External) is yet another of DOS'S "filter" commands, sorting (arranging) data lists in alphabetical, reverse-alphabetical, or numerical order. SORT, like MORE, is used with other DOS commands to supply the data listing to be sorted. Example: A›**DIR -- SORT**

VERIFY (Internal) is used to check (or verify) that data has been properly recorded on a disk. VERIFY can be turned on or off. When on, DOS performs a verifying procedure after each disk-write operation. Example: A›**VERIFY ON**

› and ‹ (Internal) are DOS's two primary "redirection" commands. The › symbol is used to divert, or redirect, data from the screen to another output channel like a disk file (.FILENAME) or the printer (›PRN). In addition, the ›› symbol is used to redirect output to the end of an existing file. The ‹ symbol is used to redirect the input channel, normally displaying data from a disk file (‹FILENAME) instead of the keyboard. Example: A›**DIR›FILELIST**

Accessing Microcomputer Bulletin Boards by Telephone
By Scott Barber, Academic Computing Staff (AC10@NTSMUSIC)

There are a multitude of bulletin board services (BBS) accessible by anyone with a phone, a modem and a PC with communications software, which offer a wealth of information, contacts, and extremely inexpensive (if not free) software. In fact, recent *Benchmarks* articles have discussed the existence of public domain programs to convert WordStar files to ASCII files without all the "junk", to transfer files to and from the VAXs (KERMIT), to emulate a graphics terminal (GTERM), etc.

Many such programs can be easily downloaded to your PC over the phone line, some of which will perform basic operations like editing and maintaining your DOS directory. Other programs perform more elegant programming tasks such as "MAKE" utilities, spooling routines, and graphics functions for Turbo Pascal.

The following list illustrates the variety of programs and textual materials available on a bulletin board in the Dallas area for TI Professional Computers (TI-HOST). This board, like many other good ones, requires a small registration fee (in this case $10 annually) to obtain access to the discussions and downloading facilities.

CHOP	ARC	Chops big files into little ones
ANYWHERE	ARC	Finds file(s) on multiple drives/directories
TAXAUDIT	DOC	How tax returns are selected for audit
EPISTAT	ARC	Statistical analysis program in BASIC
IBM370	ARC	Assemble, link and execute IBM 370 ASSEMBLY programs
MUSICMAN	ARC	Interactive music composition
TICHESS	ARC	Excellent chess game
TICOMM22	ARC	Latest release of TICOMM by 'GREG HALEY'
PFORMAT	ARC	PASCAL source code formatter
SPOOL	ARC	Print spooler
PACK	ARC	Grab bag of utilities, games & system utilities
INTRUPT	DOC	Synopsis of interrupts and system functions
GENOLGY	ARC	Geneaology program
DATETIME	ARC	Date/time manipulation routines,(LATTICE C)
AREAS	ARC	Calculate 2-dimentional sectional areas
DSKLBR	ARC	Disk catalog utility
CURVEFIT	ARC	LOTUS macro to do curve fitting
EZDOS	ARC	Export easywriter documents to ASCII files
MORTGAGE	WKS	LOTUS worksheet for mortgage analysis
MUSIC20	ARC	Assorted music programs in MS-BASIC
BSFT	ARC	File gransfer utility for BUSINESS SYSTEM 990
ROTATE	ARC	LOTUS matrix rotation macro

UNDEL	ARC	Undelete program for floppies only
ESIE	ARC	Artificial intelligence program and demos
FEDTAM85	ARC	1985 tax worksheet for LOTUS
MW	ARC	MEMO-WRITER
ANSI	C	ANSI driver written in 'C'
DOSEDIT	ARC	DOS command line utility
CAT	ARC	UNIX-like concatenation utility
RBBS	DOC	Lists area bulletin boards
RBBSTI	DOC	Lists TIPC bulletin boards around the country
3-D	ARC	3 dimensional graphics editor
VECTOR	ARC	Disable EMULATE.COM without rebooting
ENVLADD	ARC	BASIC utility to address envelopes
AUTOMENU	ARC	AUTOMENU complete with BAT & DOCS'
MAKE	ARC	Public domain make utility
EXPERT	ARC	IBM BASIC expert system program
REMINDER	ARC	TIPC reminder notebook
SAMNADOS	ARC	SAMNA to MS-DOS text file format
WHATPORT	ARC	Returns SYNC/AYSNC jumper settings
WS2ASCII	ARC	WORDSTAR to ASCII file conversion program
TIGRAPH	ARC	Graphics support TURBO PASCAL

BBS' typically focus on particular types of microcomputers, programming, or substantive topic areas. Once you access one or two boards, it is easy to find phone numbers for many more (e.g. by downloading files like RBBS.DOC and RBBSTI.DOC from TI-HOST). The "data" phone number for the TI-HOST bulletin board is (214) 557-1218.

As mentioned above, all that is required to access a bulletin board is a PC, a modem, and some communications software. If you do not have adequate communications software, there are public domain communications programs which will be useful for this purpose and which you may obtain from the Computing Center for free. In fact, if you don't have a modem, but would still like to get some free software, we have quite a bit. Just call or come by with a blank formatted diskette and I will give you the programs you want.

OPERATIONS

Disk Backup Schedules

Backup Schedule for OS/MVS

OS/MVS disk packs (academic and administrative) are backed up daily, Tuesday through Saturday, from 4-6:30 a.m., and Sunday from Midnight to 3 a.m. A backup of all the operating systems on the NAS machines and their contents is done once every two weeks at some low activity period over a weekend.

MUSIC/SP Backup Hours

A message will be sent to all users signed on to MUSIC/SP approximately 10 minutes before backups are begun. It will be in the form * * MUSIC SHUT DOWN AT xxxx AM - SCHEDULED BACKUP **. To find out the backup hours while signed on to MUSIC/SP, enter HELP HOURS. The following backup schedule is currently in effect:

Tuesday	3 a.m. (for about 3 hours)	Weekly backup
Wednesday - Saturday	4 a.m. (for about 2 hours)	Daily backup
Saturday	Midnight (for about 2 hours)	Daily backup

PHOENIX Backup Schedule

PHOENIX is backed up weekly on Sunday night. The backup begins at midnight and lasts for approximately 30 minutes.

VAX Backup Schedule

Incremental backups of both VAX systems are performed Monday through Thursday at 4 p.m. Users do not have to log-off, but any files that are open at the time of the backup will NOT be backed up.

Full backups of both systems are done every Friday beginning at 8 a.m. These generally will take all day to complete. Again, users do not have to log-off, but any files that are open will not be backed up.

A "Stand Alone" backup of the system disk is done the third Tuesday of every month, in the afternoon, just before preventive maintenance. This procedure makes a copy of the system disk that can be used to restore its contents if the disk is completely destroyed. The system will be shut down; watch the system log-on message for specific times and dates.

NOTE: No backups are taken on the weekends. Requests for restoration of files should be made via MAIL to the username OPERATOR. Your file can only be restored if it existed before the last backup was done.

NAS/8043 and NAS/6650 Performance Statistics for March

CPU	SYSTEM	SCHEDULED OPERATING HOURS	PLANNED MAINT. HOURS	PLANNED PRODUCTION HOURS	UNPLANNED MAINT. HOURS	PRODUCTION HOURS ACHIEVED	SYSTEM UPTIME
8043	VM/SP3	744	0.00	744.00	1.78	742.22	99.8%
8043	MUSIC/SP	744	26.81	717.19	6.82	710.37	99.0%
8043	MVS/JES2	744	0.00	744.00	3.31	740.69	99.6%
8043	COMPLETA	744	0.00	744.00	4.49	739.51	98.4%
6650	MVS/JES2	744	0.00	744.00	0.93	743.07	99.9%
6650	COMPLETEA	201	0.00	201.00	0.89	200.11	98.6%
6650	ADABASA	744	25.93	718.08	18.81	699.26	97.4%

System Uptime = (Production Hrs. Achieved)/(Planned Production Hrs.)
Production Hrs. Achieved = (Planned Production)-(Unplanned Maint.)
Scheduled Operating Hrs. = (Planned Maint.) + (Planned Production)
MUSIC/SP Planned Maintenance Hours include 19.99 Hrs. for system backup.
ADABASA'S Planned Maintenance Hours include 25.93 Hrs. for system backup.

The NAS/8043 CPU achieved 100% uptime. The NAS/7360 DASD achieved 100% uptime. The NAS/7350 DASD achieved 100% uptime. The NAS/6650 CPU achieved 100% uptime. The STC 8650 DASD achieved 100% uptime. The NAS/7380 DASD achieved 100% uptime.

Lost productivity is calculated as the greatest amount of elapsed time that any one of the production systems was unavailable for scheduled operation. Lost productivity hours were contributed to by the following key causes:

NAS/8043 CPU:

CPU, Tape, and Disk Subsystems (NAS)
1. Remote CPU Diagnostics Installation — 2.06 HOURS

Miscellaneous
1. Undetermined causes for systems restarts — 0.87
2. MUSIC/SP System Tuning/Improvements — 2.72
3. MUSIC/SP System Failures — 2.20
4. VM/SP3 System Tuning/Improvements — 0.28

TOTAL 6.07

GRAND TOTAL FOR NAS/8043 8.13 HOURS

NAS/6650 CPU:

Miscellaneous
1. ADABASA System Tuning/Improvements — 15.17 HOURS
2. Power Failure in ISB caused BYMPX 0 to fail — 2.09
3. COMPLETA System Failures — 0.21

TOTAL 17.47 HOURS

GRAND TOTAL FOR NAS/6650 17.47 HOURS

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*                                     *
*          TECHNICAL                  *
*            SUPPORT                  *
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NAS/8043 Program Hit Parade

The following programs were used the most frequently on the NAS/8043 during the month of March.

MARCH TOP TEN PROGRAMS IN TERMS OF FREQUENCY OF RUNS

Program	Description	Number of Runs	Percent of Total
1. IKFCBL00	VS COBOL Compiler	17176	16.7
2. IEWL	Linkage Editor	16702	16.3
3. PGM=*.DD	Compiled Program	14765	14.4

4. IEBGENER	IBM Utility	11192	10.9
5. SCRIPT	Waterloo/SCRIPT	10421	10.1
6. IEFBR14	IBM Null Utility	6375	6.2
7. OTHER	Programs not Categorized	5998	5.8
8. PTPCH	Dataset Lister	5688	5.5
9. SASLPA	SAS	4977	4.8
10. IFOX00	System Assembler	3047	3.0

MARCH TOP TEN PROGRAMS IN TERMS OF CPU SECONDS USED

Program	Description	CPU Seconds	Percent of Total
1. PGM=*.DD	Compiled Program	64619	30.7
2. SASLPA	SAS	32616	15.5
3. OTHER	Programs not Categorized	31871	15.1
4. IKFCBL00	VS COBOL Compiler	24468	11.6
5. SCRIPT	Waterloo/SCRIPT	22768	10.8
6. IFOX00	System Assembler	9039	4.3
7. PTPCH	Dataset Lister	7018	3.3
8. IEWL	Linkage Editor	6369	3.0
9. LOADER	System Loader	4371	2.1
10. IEBGENER	IBM Utility	2970	1.4

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*                                   *
*                                   *
*          V A X E N                *
*                                   *
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EDT Editor - Extended!
By Lee Harper, VAX Operator

An extended version of the EDT editor is set up on the VAX which uses a lengthy edit initiator file to add some very time-saving features to normal editing. Plus, it enables a set of windowing commands, so you can edit more than one file at a time. To use the extended EDT, type: **X filename** instead of the usual **EDIT/EDT filename**. (For a copy of the EDT keypad overlay for TeleVideo 970 Terminals, come by the Computing Center Reception Area -ISB 119).

Extended EDT allows you to perform any function that the stock EDT editor does in EXACTLY the same manner. This allows those unfamiliar with the extended EDT to always be able to fall back on stock EDT in a pinch, without being lost in a maze of new keys.

The first thing extended EDT does is to put you directly into screen mode by issuing SET MODE CHANGE directly from the edit initiator file (SYS$PUBLIC:XEDIT.EDT). To get help on the extended EDT key definitions, Press ‹GOLD› ‹HELP› (‹F1› ‹F2› on VT100s). Nearly all the commands accept an iteration count (repeating a command is described on page EDT-75 of the EDT utility manual). In commands which ask for input (like buffer name), the input must be terminated with the keypad ‹ENTER› key. If for some reason, you wish to abort the command asking for input, press the ‹CTRL› and ‹U› keys and EDT will terminate the command without any action taking place.

The list divides the commands into three groups: 1) those related to cursor movement; 2) buffer manipulation; and 3) miscellaneous functions.

KEYS FOR CURSOR MOVEMENT

Key-sequence	Action
‹GOLD› ‹UP-ARROW›	Up one screen (22 lines).
‹GOLD› ‹DOWN-ARROW›	Down one screen (22 lines).
‹GOLD› ‹LEFT-ARROW›	Shift screen left 8 columns.
‹GOLD› ‹RIGHT-ARROW›	Shift screen right 8 columns.
‹GOLD› ‹=›	Positions the current line at the top of the screen, except when cursor is less than 22 lines from the bottom of the file.
‹GOLD› ‹,›	Inserts a place marker which can be found with the ‹GOLD› ‹/›. This is useful when you leave EDT, but want to save your place.

‹GOLD› ‹/›	Locates and deletes the place marker.
‹CTRL› ‹B›	Backward one word.
‹CTRL› ‹F›	Forward one word.
‹CTRL› ‹P›	Move cursor to previous or next paragraph, depending on direction. The default definition for a paragraph is two consecutive carriage returns. You can change this by the command: **SET ENTITY PAR " "**. Put the default you want between the quotes.
‹GOLD› ‹CTRL› ‹B›	Move cursor to beginning of sentence.
‹GOLD› ‹CTRL› ‹F›	Move cursor to end of sentence.
‹GOLD› ‹CTRL› ‹H›	Reverse the last two characters (this is helpful for us fumble-fingers who type "teh" instead of "the").
‹GOLD› ‹CTRL› ‹I›	Move cursor forward or back 8 characters (this is helpful for tabbing across a line without inserting spaces).

KEYS FOR BUFFER MANIPULATION

Key-sequence	Action
‹GOLD› ‹DEL›	Delete named buffer.
‹GOLD› ‹B›	Switch to named buffer.
‹GOLD› ‹I›	Copy named file to named buffer.
‹GOLD› ‹M›	Switch to main buffer.
‹GOLD› ‹O›	Copy named buffer to named file.
‹GOLD› ‹S›	Show all named buffers.
‹GOLD› ‹V›	Write WINDOW2 buffer to named file.
‹GOLD› ‹X›	Allow editing of another file (puts it into a buffer named WINDOW2).
‹CTRL› ‹G›	Paste contents of named buffer.
‹CTRL› ‹V›	Toggle between main and WINDOW2 buffers. Think of this as "change view".
‹CTRL› ‹]›	Cut select region to named buffer.
‹GOLD› ‹CTRL› ‹G›	Replace select region with named buffer.
‹GOLD› ‹CTRL› ‹M› or ‹GOLD› ‹RETURN›	Switch to main buffer.
‹GOLD› ‹CTRL›]	Copy select region to named buffer.

KEYS FOR MISCELLANEOUS FUNCTIONS

Key-sequence	Action
‹GOLD› ‹L›	Move to previous position. Use this to move from one file to another when editing two.
‹GOLD› ‹C›	Change case, except first letter. This is very useful for changing an uppercase word to capitalized lowercase, or capitalized words to all uppercase.
‹GOLD› ‹F›	Fill a paragraph.
‹GOLD› ‹N›	Make editor automatically issue carriage returns when you type past column 65.
‹GOLD› ‹Q›	Abort edit, but save the journal (.JOU) file.
‹GOLD› ‹F2›	(Also known as ‹GOLD› ‹HELP›). Displays HELP screen for extended EDT.

‹CTRL› ‹N›	Make editor automatically issue carriage returns when you type past the edge of the screen. Think of this as "narrow".
‹GOLD› ‹CTRL› ‹D›	Toggle word delimiters. This allows you to have the normal delimiters plus a set for editing programs.
‹GOLD› ‹CTRL› ‹W›	Toggle screen width (80 or 132 characters wide).
‹GOLD› ‹CTRL› ‹Z›	Exit from edit and save file. Also saves WINDOW2 buffer in file named WINDOW2.SAV.

Customizing the Extended EDT Editor

You can have your own customized version of the extended EDT editor. All you have to do is to:

1) Copy the XEDIT files into your home directory:
   $ HOME
   $ COPY SYS$PUBLIC:XEDIT.EDT *
   $ COPY SYS$PUBLIC:XEDIT.HLP *
2) Change the file specification in the line that begins DEFINE KEY GOLD 10 to the file specification of your directory's XEDIT.HLP file.
3) Edit the XEDIT.EDT initializer file and make any changes you want. Remember to change your help file (XEDIT.HLP) to reflect changes that you make. There are countless things you can do with an EDT initializer file. One thing you may want to do is to change your alternate set of word delimiters. To do this, you would merely place the word delimiters that you want into the command line that reads:

   I;SET EN WO ' ‹FF›‹VT›‹LF›‹CR›_;.,[ ]-+*/='

   in the DELIMITERS_PROGRAMMING macro definition.

   Macro definitions used in the toggle commands:

```
DEFINE MACRO DELIMITERS_PROGRAMMING
FIND=DELIMITERS_PROGRAMMING
I;DEF K GOLD CONT D AS "ext DELIMITERS_REGULAR."
I;SET EN WO '          ‹FF›‹VT›‹LF›‹CR›_;.,[ ]-+*/=$:()&—©¢'

DEFINE MACRO DELIMITERS_REGULAR

FIND=DELIMITERS_REGULAR
I;DEF K GOLD CONT D AS "ext DELIMITERS_PROGRAMMING."
I;SET EN WO '          ‹FF›‹VT›‹LF›‹CR›'

DEF M WIDTH_132
FIND=WIDTH_132
I;DEF K GOLD CONT W AS "EXT WIDTH_80."
I;SE SC 132

DEF M WIDTH_80
FIND=WIDTH_80
I;DEF K GOLD CONT W AS "EXT WIDTH_132."
I;SE SC 80

DEF M TO_WINDOW2
FIND=TO_WINDOW2
I;DEF K CONT V AS "EXT TO_MAIN."
I;F=WINDOW2.

DEF M TO_MAIN
FIND=TO_MAIN
I;DEF K CONT V AS "EXT TO_WINDOW2."
I;F=MAIN.
```

4) Put the line **$ X*EDIT := = "edit/edt/command=DRA1:[AA00]XEDIT** into your LOGIN.COM file, but make sure to change DRA1:[AA00] to your home directory specification. To find out your home directory specification, type **HOME**, and then **SHOW DEFAULT**.

New VAX Print Utility
By Steve Pettit, VAX Operator

A new print utility has joined the ranks of the VAX commands: **PRTMENU**. This is a menu driven utility that will allow users to send files to the queued printers supported by both the 8043, and the VAXcluster. To send files to the queued printers supported by the 8043 (LASER, REMOTE3, and REMOTE1) one must have an account on the 8043. To invoke the utility just type **PRTMENU** (it can be abbreviated to **PRT**). The following menu will then be displayed on the user's screen, with the cursor appearing just after the "YOUR CHOICE" prompt.

PRINT MENU ROUTINE

Only send files to VAXcluster if you are in the GAB lab

1 or L - Send to LASER	ISB	(through the 8043)
2 or B - Send to REMOTE1	BA	(through the 8043)
3 or I - Send to REMOTE3	ISB	(through the 8043)
4 or V - Send to VAXcluster	GAB	5th floor lab printers
5 or H - Help		
6 or Q - Quit		

BEWARE!: REMOTE1 and REMOTE3 will print lower case letters as blanks.

YOUR CHOICE:

The choices are straightforward and call other procedures that will queue the files. PRTMENU can be aborted with a ‹CTRL›‹C› before one of the selections is made. However, once a selection is made ‹CTRL›‹C› will be ignored until that selection is finished. So the user needs to be careful in their selection. Selections are made by entering the number to the left of the choice description. Invalid choices are ignored and the user will be asked to press the return key to continue with the menu.

Any one of the first three choices will send a file through the 8043 to whatever printer queue was selected. These all ask the user for their VMS Id, MVS password, and the name of the file to be printed. If the user does not have an account on the 8043 then they cannot successfully use one of these choices. The locations of these printers is listed to the right of the choice. After one of these choices is complete there will be a file in the user's directory named "LASERCOMM.TMP." This file is used by the HASP+ utility which does the acutal routing to the 8043.

The fourth choice will send a file to the VAXcluster print queue. The only prompt for this choice is the file to be printed. All users need to be aware that the GAB 5th floor lab is not a normal depository and no security, or control is provided for printouts. This makes the user responsible for their own printout. So it is not a good idea to send files here unless you are in the GAB 5th floor lab.

Choice five is the help option. It displays where the output for the printer queues are, plus it provides the time of normal operations for each dispatch area. This is the only option that will not exit the PRTMENU utility upon completion.

To exit the PRTMENU utility enter choice six. This is used when users change their minds about queueing a file. If one of the other choices besides help is selected then this option will not be used.

Once the PRTMENU utility has finished it will type a message on the user's screen saying that it has completed, and the user will be back at the DCL $ prompt. If any problems occur, the VAX operators need to be notified with the VAX MAIL utility, or by phone at 565-4161.

The VAX/VMS MAIL Utility
By Lucia Young, VAX operator

Editor's note: We have mentioned MAIL on the VAX many times, but have never really "gone into it." The following article provides a nice overview for people who may be unfamiliar with VAX MAIL.

The VAX/VMS MAIL utility allows you to send messages to other users on the same node or a remote node by means of DECnet. You can also read, file, forward, delete, print, and reply to messages that other users send to you.

When you log-on to the VAX, the MAIL utility will notify you whether you have new messages. To read messages, you need to run the MAIL utility.

To invoke the MAIL utility, type **MAIL** from the $ prompt: $ **MAIL**

Common Commands

Command	Action
DELETE	Delete messages
EXTRACT	Copy the current message into a sequential file
EXIT	Exit the MAIL utility
FILE	Put the current message to a folder
FORWARD	Forward the current message to other users
READ/NEW	Read new messages if any
REPLY	Reply to messages that other users send to you
SELECT	Choose an existing folder
SEND	Send messages to other users

You can also type **HELP** in the MAIL utility to see all the commands that are available.

Mail files and folders

Messages that you receive are stored in files called MAIL files. Your default MAIL file, called MAIL.MAI, is created in your default directory the first time you receive a mail message.

There is usually no reason for a user to have more than one MAIL file, but if you have more than one MAIL file, you can use the MAIL utility to access any of these files by typing: **SET FILE filename** where **filename** is the MAIL file you want to use, usually with an extention of MAI. The MAIL utility uses MAIL files with a file organization of indexed; sequential text files will not be recognized as MAIL files. To combine two MAIL files, use the CONVERT command. The following command example combines the two MAIL files OLDMAIL1.MAI and OLDMAIL2.MAI into a MAIL file named MAIL.MAI, which will contain both of them: **CONVERT OLDMAIL1.MAI, OLDMAIL2.MAI MAIL.MAI**

All MAIL files are subdivided into folders. By default, your MAIL file contains a folder named MAIL. The MAIL folder contains messages that you have already read. When you receive new mail messages, they automatically enter a folder named NEWMAIL. When you delete a message it automatically moves into the WASTEBASKET folder. This folder will be emptied when you exit the MAIL utility. You can also create your own folders. To create folders, use the file command: MAIL› **file memo**

The current message will be filed into a folder named MEMO. It will prompt you for the creation of that folder if it doesn't exist.

To display the names of all existing folders, use the dir/folder command: MAIL› **dir/folder**

To choose a particular folder, use the select command: MAIL› **select memo**

To remove a folder, simply delete all the messages it contains.

Keypad

The MAIL utility also allows you to use the keypad to execute MAIL commands. Type **HELP KEYPAD** in the MAIL utility and it will show you the default keypad definitions.

Other Features

When you receive a mail message larger than 3 blocks, it is written to a sequential file. You will see this mail message as a file in your directory with a file type of MAI: MAIL$nnnnnnnnnnnnnnnnnnnn.MAI The n's stand for random numbers. This file will be deleted automatically when you delete the message from within the MAIL utility.

Top 20 Images Run on the VAXcluster: March 1, 1986 - April 1, 1986

	IMAGE NAME	TOTAL
1.	DELETE	57788
2.	TYPE	55318
3.	LOGINOUT	48420
4.	DIRECTORY	40917
5.	EDT	38072
6.	SET	37782
7.	SHOW	19783
8.	PASCAL	16750
9.	LINK	13263
10.	SETP0	8241
11.	NETSERVER	7122
12.	SUBMIT	6309
13.	MAIL	5042
14.	TPU	4471
15.	ADA	4043
16.	DATEMENU	3974
17.	MSG	3971
18.	VMSHELP	3206
19.	ACS	3105
20.	XPRO	2615

INFORMATION SYSTEMS

Information Systems News

Laura Massey, who has been employed by the Computing Center as a Data Control Assistant for the past three years, was promoted to Programmer I with the General Systems Group, effective April 1. Her new position is one of the vacant positions that were announced in the March issue of Benchmarks. She will work on the FAMS and Advancement Systems Teams. Trina Knight, currently a data entry operator, will be moving into the vacant Data Control position.

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